MLSHNTMMKQRKQQATAIMKEVHGNDVDGMDLGKKVSIPRDIMLEELSHLSNRGARLFKM

180 rorrsdkyttenfoyosraqinhsiamongkydgsnleggsoqaplipppntpdprsppnp DNIAPGYSGPLKEIPPEKFNTTAVPKYYQSPWEQAISNDPELLEALYPKLFKPEGKAELP

DYRSFNRVATPFGGFEKASRMVKFKVPDFELLLLTDPRFMSFVNPLSGRRSFNRTPKGWI SENIPIVITTEPIDDITVPESEDL

FIG. 1A

mouse CAP-1

MLSHSAMVKQRKQQASAITKEIHGHDVDGMDLGKKVSIPRDIMIEELSHFSNRGARLFKM **RQRRSDKYTFENFQYESRAQINHNIAMQNGRVDGSNLEGGSQQGPSTPPNTPDPRSPPNP** ENIAPGYSGPLKEIPPERFNTTAVPKYYRSPWEQAIGSDPELLEALYPKLFKPEGKAELR

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**DYRSFNRVATPFGGFEKASKMVKFKVPDFELLLLTDPRFLAFANPLSGRRCFNRAPKGWV** 

FIG. 1B

SENIPVVITTEPTEDATVPESDDL





# 3

# human CAP-2

9	LTNRGSKMF
	4PLSGTPAPNKKRKSSKLIMELTGGGQESSGLNLGKKISVPRDVMLEELSLLTNRGSKMF
	SSSCINLGKKIS
	KLIMELTGGGQES
	PAPNKKRKSSI
	1PLSG1

KLRQMRVEKFIYENHPDVFSDSSMDHFQKFLPTVGGQLGTAGQGFSYSKSNGRGGSQAGG

SGSAGQYGSDQQHHLGSGSGAGGTGGPAGQAGRGGAAGTAGVGETGSGDQAGGEGKHITV

240 FKTYISPWERAMGVDPQQKWELGIDLLAYGAKAELPKYKSFNRTAMPYGGYEKASKRMTF

**OMPKFDLGPLLSEPLVLYNQNLSNRPSFNRTPIPMLSSGEPVDYNVDIGIPLDGETEEL** 

FIG. 10

mouse CAP-2

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	MPLSGTPAPNKRKSSKLIMELTGGGRESSGLNLGKKISVPRDVMLEELSLLTNRGSKMF

120 KLRQMRVEKFIYENHPDVFSDSSMDHFQKFLPTVGGQLETAGQGFSYGKGSSGGQAGSSG 180 SAGQYGSDRHQQGSGFGAGGSGGPGGQAGGGGAPGTVGLGEPGSGDQAGGDGKHVTVFKT YISPWDRAMGVDPQQKVELGIDLLAYGAKAELPKYKSFNRTAMPYGGYEKASKRMTFQMP

KFDLGPLLSEPLVLYNQNLSNRPSFNRTPIPWLSSGEHVDYNVDVGIPLDGETEEL

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mCAP-2

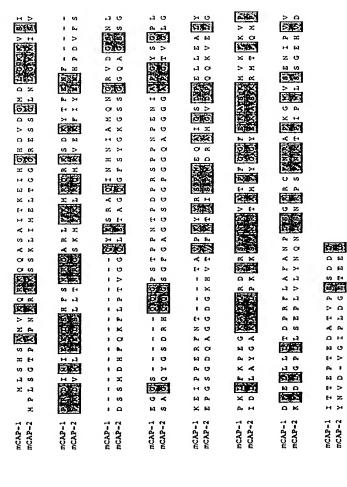


FIG. 1E

### human CAP-1

10 GTCCCAGGTTC CAGGGTCCAAG	20 MAGGATAAAAA PTCCTATTTTP	30 CCATCAGGCCC GGTAGTCCGGG	40 AAGTGCCATC TTCACGGTAG	50 CATAGTCCAT GTATCAGGTA	60 PCTCCAGAGTO AGAGGTCTCAC	70 TTCCTCCACA SAAGGAGGTGT	80 MACTGGGATT TTGACCCTAA	90 CATCCCCGCT IGTAGGGGCA	100 Gaaaaag Ctttttc
110 CACAATCTAAC GTGTTAGATTG	120 AGCAAGGGAAC ICGTTCCCTTG	130 AAAAAAACCAT ITTTTTTGGTA	140 GCTATCACAT CGATAGTGTA	150 ANTACTATGA TTATGATACT	160 ATGAAGCAGAC	170 SAAAACAGCAA TTTTGTCGTT	180 GCAACAGCCA CGTTGTCGGT	190 ATCATGAAGGA PAGTACTTCCT	200 LAGTCCAT TCAGGTA
210 GGAAATGATGT CCTTTACTACA	220 IGATGCCATGG ACTACCGTACC	230 ACCTGGGCAAA TGGACCGGTTT	240 AAGGTCAGCA TTCCAGTCGT	250 TCCCC AGAGA AGGGGTCTCT	260 ACATCATGTTC TGTAGTACAAC	270 GAAGAATTAT CTTCTTAATA	280 CCCATCTCAG GGGTAGAGTC	290 TAACCGTGGT ATTGGCACCA	300 2324222 2327222
310 TATTTAAGATGA ATAAATTCIACO	320 CGTCAAAGAAG CAGTITCITC	330 ATCTGACAAAT IAGACTGTTTA	340 ACACATTTGA TGTGTAAACT	350 AAATTTCCAG TTTAAAGGTC	360 TATCAATCTA ATAGTTAGAT	370 GAGCACAAAT CTCGTGTTTA	380 AAATCACAGT TTTAGTGTCA	390 PATTGCTATGC ITAACGATACG	400 AGAATGG TCTTACC
410 GAAAGTGGATG CTTTCACCTAC	420 CANGTANCTTCA CTTCATTGANC	430 CAAGGTGGTTC CTTCCACCAAG	440 GEAGCAAGCC CGTCGTTCGG	450 CCCTTGACTC	460 CTCCCAACAC	470 CCCAGATCCA GGGTCTAGGT	GCTTCGGGAG	490 CAAATCCAGA GTTTAGGTCT	500 CAACATT GTTGTAA
510 GCTCCAGGATA CGAGGTCCTAT	520 PTCTGGACCAC MGACCTGGTG	530 IGANGGAAATT ACTTCCTITAA	540 CCTCCTGAAA GGACGACTTT	550 AATTCAACAC TTAAGTTGTG	560 CACAGCTGTC	570 CCTAAGTACT GGATTCATGA	580 ATCAATCTCC TAGTTAGAGG	590 CTGGGAGCAA GACCCTCGTT	600 GCCATTA CGGTAAT
610 GCAATGATCCGG CGTTACTAGGCG	620 CAGCTTTTAGAC	630 GGCTTTATATC CCGAAATATAG	640 CTAAACTTTT GATTTGAAAA	650 CAAGCCTGAA GTTCGGACTT	660 CCTTTCCGTC	670 AACTGCCTGA TTGACGGACT	680 TTACAGGAGC AATGTCCTCG	690 TTTAACAGGG AAATTGTCCC	700 TTGCCAC AACGGTG
710 ACCATTTGGAGG TGGTAAACCTCG	720 STITTGAAAAA	730 GCATCAAGAAT GGTAGTTCTTA	740 GGTTAAATTT CCAATTTAAA	750 AAAGTTCCAG TTTCAAGGTC	760 ATTTTGAGCT	770 ACTATTGCTA TGATAACGAT	780 ACAGATCCCA TGTCTAGGGT	790 GGTTTATGTC CCAAATACAG	800 CTTTGTC GAAACAG
AATCCCCTTTCT TTAGGGGAAAG									
910 CTGTACCAGAA: GACATGGTCTTI	920 CAGAAGACCTA GTCTTCTGGA	930 ATGAAAAGAAA FACTTTTCTTT	940 GTTGTATGTG CAACATACAC	950 CCACATAAAA GGTGTATTTT	960 CTCTGAATAT GAGACTTATA	970 AAAAGTTGCT TTTTCAACGA	980 GTTCTACTAT CAAGATGATA	990 TITAACTACTI AAATTGATGA	1000 GGCAAAG CCGTTTC
1010 CACTTGCATTT GTGAACGTAAA	1020 FTCATTAGTAGG	1030 CAACAATAGCA STTGTTATCGT	1040 ATTTAGTGAT	1050 TTTCCTTTTC	1060 TGACATTCAA ACTGTAAGTT	1070 TTTCAATCTC AAAGTTAGAG	1080 AGATCAAATA TCTAGTTTAT	1090 CTANTANACA GATTATTTGT	1100 ATTAGAA TAATCTT
1110 ATCTTACTITAL TAGAATGAAAT	1120 WAAACTTATAI	1130 ACTCACTTGTC TGAGTGAACAG	1140 TTCATTCATA AAGTAAGTAT	1150 ATTTTGTTTT	1160 CACCTGGTTT GTGGACCAAA	1170 AAAGAATCCA TTTCTTAGGT	1180 GATATTTTAC	1190 TGCAAAAGTTC	1200 CAGATGG CTCTACC
1210 AXAAGTAATTGA TTTTCATTAAC	1220 ACAGCTTCACCT	1230 HTTGTCTCATT	1240 TTATATGATT	1250 INTINCAGIG	1260 TANGTTTTTC	1270 AAGTGGAATC	1280 TAGAATCAAA	1290 ATACAGGGAGI	1300 AGATATG
1310 AAGACCTATTCI TTCTGGATAAG									
1410 TGAGAAAATAAT ACTCTTTTATT	1420 TATGTCTTGATO	1430 SANGTCTTTTC CTTCAGAAAAG	1440 ATTAGTCACTO TAATCAGTGA	1450 CTTAGAATTC GAATCTTAAG	1460 TAAAGTGCTT ATTTCACGAA	1470 POCACTITICA ACCTGAAAAG	1480 MATATGITITO ITATACAAAA	1490 GAATCATTAGG CTTAGTAATCG	1500 TAATTT CATTAAA
1510 ATTCTGGATGAT TAAGACCTACTA	1520 TATTCTCCAAA/ TAAGAGGTTT	1530 ATTCAATTCAG BAAGTTAAGTC	1540 ITATTATATA MATAATATA	1550 CATTTAGCAT CTAAATCCTA	1560 TANGTCANGG ATTCAGTTCC	1570 MGACTGAGAA ICTGACTCTT	1580 IGACTCAAGGG ACTGAGTTCCG	1590 SACGTCATAGE CTGCAGTATCA	1600 TACCATA TGGTAT
1610 CTTTTAAGGACG	1620 AAGGTGTGCCC	1630 CAGAATTCAAG	1640 ITTCACAAAT	1650 CCAATGCTG	1660 TGCATTGATE	1670 ATGTTCAACT:	1680 FTATGTGTGC	1690 ·	1700 SAGTANG
CAAAATTCCTGG	TTCCACACGGG	1730	AAAGTGTTTA	GGTTACGAC. 1750	ACGTAACTAA: 1760	IACAAGTTGA 1770	ATACACACGI 1780	TAAGAATCTTC 1790	1800
AACAAATAAAGI TTGTTTATTICI	ACACCGTAATA TGTGGCATTAI	TACATATAAA TATGTATATAT	TACATTCATG: NTGTAAGTAC	TTGTGAGAG NAACACTCTC	TTCCTTTCTC	IAAGTAATTT NTTCATTAAA	TTAACCGTCG	TTTCTTTGC1	TAAATCT
1810 TTAAATTCTGTT AATTTAAGACAJ	1820 AAGATCCTCAA TTCTAGGAGTT	1830 GTAACTGGGG CATTGACCCC	1840 NGTACATGCT NCATGTACGAU	1850 TINGGACACA MATCCIGIGI	1860 AACAAAAACA TICITTIGI	1870 MAGGGCATGAJ FTCCCGTACT	1880 NGTATCTGAI TTCATAGACTT	1890 UAGCAATGTAG TTCGTTACATC	1900 CACATA GTGTAT
1910 TCTATCGTANTA AGATAGCATTAT	1920 TATGTAATATA ATACATTATAT	1930 ATTGACATAAA AACTGTATTT	1940 MGACACAAACT ICTGTGTTTG	1950 FARTATAAAG ATTATATTTC	1960 TTATAGTTATI NATATCAATA	1970 ATCTTAAAATI FAGAATTTTA	1980 STARTIGARGA SATTARCTICE	1990 NAGCATATGAC TCGTATACTG	2000 ATATAA TATATT
2010 CTTATAGAAATC CAATATCTTTAG	2020 AGTATCAAITC TCAIAGTIAAG	2030 CTCCCATTICA GAGGGTAAAG	2040 NATTCAGTTAJ ITANGTCAATT	2050 NEACTICIGIN ICTGAAGACA	2060 CATAGATGTT CTATCTACAL	2070 PATAGCAGAGI MATCGTCTCT	2080 MGANATOTOT TOTTINGAGA	2090 CATCANTAGG GTAGTTATCC	2100 AAAACT TITTGA
2110 ATCAGATAAAGI TAGTCTATTTCA	2120 TIAGGAGATAG AATCCTCTATC	2130 GAAGAAGGACT CTTCTTCCTG	2140 IGTGTGTAGT/ ICACACATCA	2150 NATGANARTA TINCTITIAT	2160 CCAAGTTGCAJ GGTTCAACGT	2170 CATTACATGI CENATGIACA	2180 TTACAAAAA AATGTTTTT	2190 NATCTGTGTT TTAGACACAA	2200 TGTAGT ACATCA
2210 CTGCAAGTTGGT CACCTTCAACCA	2220 GACTGTTTTAA CTGACAAAATT	2230 TCATCATCTAC AGTAGTAGATC	2240 ACTIGITAAC TGAACAATTO	ZZSO TAGAAAAT ATCTTTTA	2260 ITTAAAAATII MAATITITAA	2270 CCTTATGAAA CGAATACTTI	2280 ATATAACCCC TATATTGGGG	2290 CAGAAAGTAA GTCTTTCATT	2300 CAATGA GTTACT
2310 CAAAGTATTATA GTTTCATAATAT	2320 ETTATATATATA AAATATATATA	2330 TATTGTAGAGI ATAACATCTCT	2340 NATTIGTATAT TAAACATATA	2350 TTTTAAAGAT AAAATTTCT/	2360 IGTCTTANCAT NCAGAATTCTA	2370 PATCTTAATTT TAGAATTAAA	2380 TATTTATAAG ATAAATATTC	2390 TTTTGGTGTT NANACCACAL	2400 TACCTG ATGGAC
2410 TITTAAATGAT AAAATTITACTA	2420 AATGTTGGCAT FTACAACCGTA	2430 CTGTGATAAAC GACACTATTTO	2440 TATCAATGAG ATAGTTACTO	2450 GCTCCCATCA CGAGGGTAGT	2460 ATGCCATTIII PACGGTAAAAA	2470 TGTTCATTTT ACAAGTAAAA	2480 AATCTITAAA ITAGAAATII	2490 AAATAAAAT TTTATTTTA	2500 TAGGCA ATCCGT
2510	2520	2530							

FIG. 2A

# mouse CAP-1

٠.									
10		30	40		60	70	80	90	100
	TGGGATCGAGGGA	CCATCCCGTT	CCACGTTCAA	GGATANAACC	CATTGGGCCA	TAGTGCCGTC	ATATTCCACC	TTCACTGCCT	TCCTCCA
6161	ACCCTAGCTCCCT	CCTACCCCAA	GGTCCAAGTT	CCTATTTTGG	GTAACCCGGT	ATCACGGCAG	TATANGGTGG	<b>AAGTCACGGA</b>	AGGAGGT
110	120	130	140	150	160	170			
	TCACCCCTGCTGA				160		160	190	200
CCTA	AGTGGGGACGACT	TTTCCCCTCC	CIGNENGERN	CCCTTCATA	AACIAIGCIA	TUACATAGTG	CCATGGTGAA	<b>GCAAAGGAAA</b>	CAGCAAG
		************	wac rerecti	cccriciiii	TIGNINGGNI	MILITATURE	GUACUACTE	CCTTTCCTTT	CTCCTTC
210	220	230	240	250	260	270	280	290	300
CCAT	CACGAAGGAAATC	CATGGACATG		CATGGACCTG	CCCARARAG	TTACCATCCC	CACACACATE	27U	300
CCTA	GTCCTTCCTTTAG	GTACCTGTAC	TACAACTGCC	GTACCTGGAC	CCGTTTTTTC	BATCCTACCC	CTCTCTCTAC	TACTATOTA	TTILLE
							arca caroano	ime iniciae	11 AACAG
310		330	340	350	360	370	380	390	400
CAGI	AATCGTGGGGCCA	GGCTGTTTAA	CATGCGTCAA	AGAAGATCTG	ACAAATACAC	CTTTGAAAAT	TTCCAGTATG	ATCTACACC	
STCA	TTAGCACCCCGGT	CCCACAAATT	CTACGCAGTT	TCTTCTAGAC	TGTTTATGTG	GAAACTTTTA	MAGGTCATAC	TAGATETEG	TGTTTAA
410	420	430	440	450	460	470	480	490	500
MTA	TCCCCATGCACAA	TGGGAGAGTT	CATGGAAGCA	ACCTGGAAGG	TGGCTCACAG	CAAGGCCCCTC	AACTCCGCC	CAACACCCCC	GATCCAC
TAT	AGCGGTACGTCTT	ACCCTCTCAA	CTACCTTCGT	rggacettee.	accgagtgtc	GTTCCGGGGA	TTGAGGGGG	TTGTGGGGG	CTAGGTG
510	520								
		530	540	550	560	570	580	590	600
	MATCCAGAGAAC	A TO CONCE AG	SATATICICG	ACCACTGAAG	GAAATTCCTC	CTGANAGGTTT	<b>PANCACGACG</b>	<b>ECCTTCCTA</b>	AGTACTA
~~~	TTAGGTCTCTTG	1 1000 100 101	LIATAAGACC	I GGT CACT TC	CTTTAAGGAG	GACTTTCCAAJ	TTGTGCTGC	GCCAAGGAT	CATCAT
610	620	630	640	650	660	670			
CCA	CCCACCAGCCCA		DOOR CALCUTO	TECRECETT	TOTACCCA BA	*CTTTC>>CC	680	690	700
CCT	ACCCTCGTCCGCT.	AACCGTCGCT	AGGCCTCGAG	ACCTOCAR	CATCCCTTT	TC A A B A CTTOC	CIGOROGO	INGCALAACT	CCCCAT
					war-0001111	a book of 1CC	www.ricciii	1CG1C11GAC	.OCCCTA
710	720	730	740	750	760	770	780	790	800
CCT	TAACAGGGTTGO	CACTCCATTN	GAGGTTTTG	WANAGE ATC	MANATGGTC	MATTCAAAGT	TCCAGATTTT	CAACTACTCC	TOOTE
CCY	<b>NATIGICCCAACG</b>	GTGAGGTAAA	CTCCAAAACT	TITICGTAG	TTTTACCAG	TTAAGTTTCA	AGGTCTAAAA	CTTGATGACO	ACCACT
								.c.r.anzance	MCCMC1
810	820	830	840	850	860	870	880	890	900
CYC	TTCTTGGCCTTN	CCANTCCTCT	TTCGGGCAG	CCATCCTTT	<b>ACAGGGGGG</b>	AAAGGGGTGG	GTATCTGAGA	ATATCCCCGT	~~~~
CIC	CANGANCEGGNAN	COCTTAGGACI	UNGCCCGTCT	TCCTACGAAA1	TGTCCCGCG	TTTCCCCACC	CATAGACTCT	TATAGGGGCA	GCACTA
910									
	920	930	940	950	960	970	980		
~~	CTACACAACACC	CACTUTACCC	CAATCAGATO	ACCIGICACI	CCCAACCTCC	GCATGCCACA	GGAAGTTC		
a su	CATGTCTTCTGCC	~1CKATCCC	CITAGICTAC	TUCKCACACTO	CCCTTCGAC	TOTACGGTGT	CCTTCAAC		

## Complete State Complete Comment

#### human CAP-2

CONTINUES CALCUTORS TECHNOCIS CECCHACCE GOGGAGGE ACCATOCC GAGCAGGG CEANTOCA CECCACAGA COCCETENAS COCCETANA ACCORDA ACCATOCAG ACCATOCAG GAGCAGGG CEANTOCA CECCACAGG CALANACAT CALCUTORS ACCATOCAG CALCUTORS COCCETANA ACCATOCAG CALCUTORS ACCATOCAG CALCUTORS CAL

#### mouse CAP-2

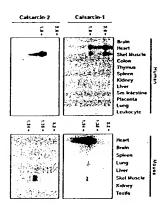


FIG. 3

FIG. 4C

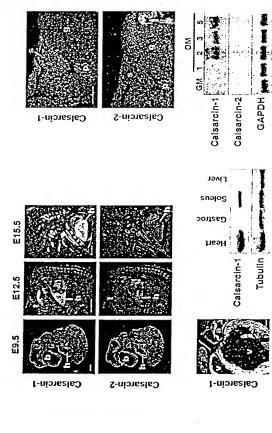


FIG. 4B

FIG. 4E

FIG. 4D

igaannaka libydab

P-1 anti-calcinavin overlay

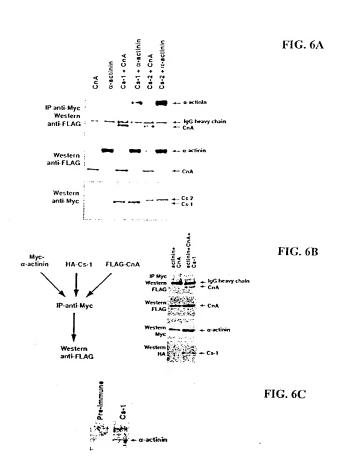
FIG. 5B

Overlay

FIG. 5A







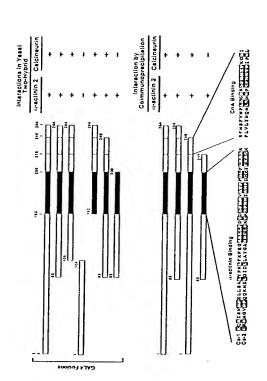


FIG. 7

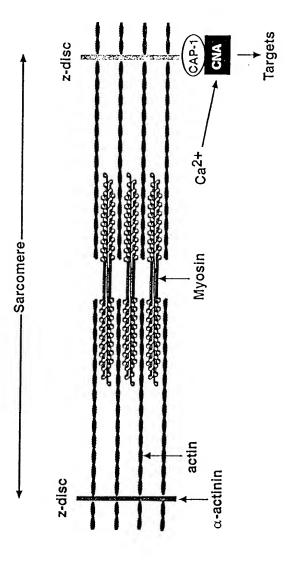
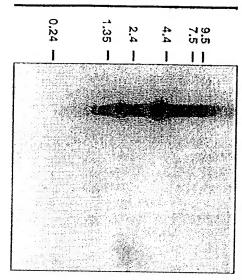


FIG. 8

# Calsarcin-3



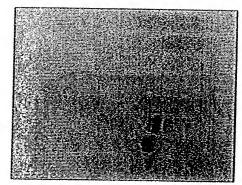
Brain
Heart
Skel Muscle
Colon
Thymus
Spleen
Kidney
Liver
Sm. Intestine
Placenta
Lung
Leukocyte

j

Mouse

Human

Fracion to the state



Spleen
Lung
Liver
Skel Muscle
Kidney
Testis

Heart Brain

$\gamma$ -filamin	1 Cs-2 Cs-3			
telethonin	Cs-1			
∝-actinin	Cs-1			
calcineurin	C2-3 C2-5 C2-1	Myc Flag	t:	t:
		M: W M: W	Input: Flag	Input: Myc

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FIG. 10

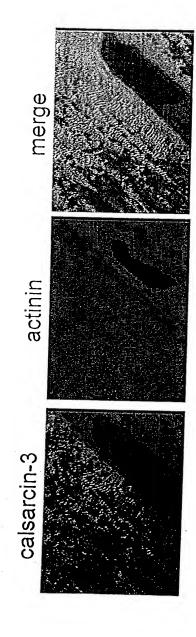
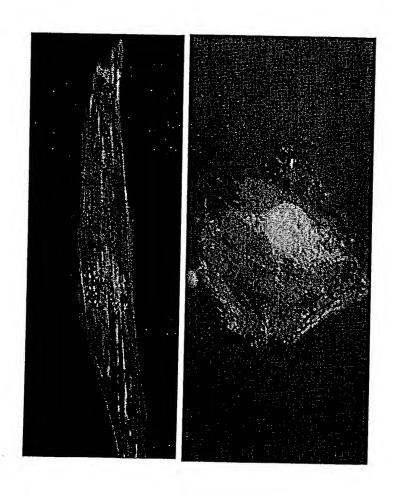


FIG. 11

FIG. 12



# ClustalW Formatted Alignments

MPLSIGTPAPWN RESERVED MAAMODLT PVPT LDLGKK SVPOD MEERLSLRNNR 47 I MPLSIGTPAPWN RESERVED KOMMEELSLRNNR 47 I MLSHNT MM KOO KOO MEMBET GGOODSSGLNLGKK SVPRD MEELSLLRNNR 55	6 GS L. L. F. C. K. R. P. R. R. P. R. L. A A S Q R A M. L. A G S A R. R. V. W. G D S G T V A N A N G P E O P N Y 102 G S WANTER B. N. P. P. D. S. S. M. D. F. C. R. P. P. V. C. G D G M. A G O P S . Y S 108 G S M. R. P. R. P. R. V. R. P. R. P. R. P. S D K. W. T. F. E. N	N S B I M I F P A S P G A S I O G P E G N H P A N A P A C C V P S P S A N A P G Y N E P I N O N S N O N O G G S O O O O O O O O O O O O O O O O	TTOVORTOSODQAGOE OKHIMOFKOVENTALSPWERANOSEFWISTRDYOSEDGES	HTPSPNDYRNFNWYTPREGGPLVGG···TFPRP····GTPFIPEPFRGERIFGER	PSFNRTPIPOWS RNLP
	8 4 8 4 4 8	203 209 209	153 . 159 T	184 H 214 H 178 H	232 P 266 P 230 R
ii-3 ii-2	n-3 n-1			• • • • • • • • • • • • • • • • • • • •	
calsarcin-3 calsarcin-2 calsarcin-1	calsarcin-3 calsarcin-2 calsarcin-1	calsarcin-3 calsarcin-2 calsarcin-1	calsarcin-3 calsarcin-2 calsarcin-1	calsarcin-3 calsarcin-2 calsarcin-1	calsarcin-3 calsarcin-2 calsarcin-1